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SCALP AND HAIR COSMETIC MATERIAL

| | |
|------------|---|
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Abstract

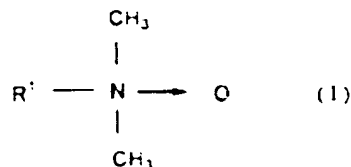
Objective

To provide a scalp and hair cosmetic material that has excellent hair loss preventing effect or hair growing effect, and scalp dandruff and itch preventing effect, and that is also excellent in safety.

Constitution

A scalp and hair cosmetic material containing an amine oxide represented by the following general formula (I)

[Structure 1]

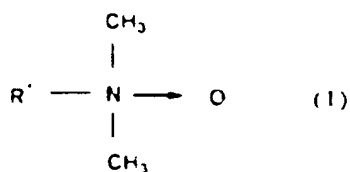


(where R¹ represents a C₁₀₋₃₆ alkyl group or alkenyl group), and a hair follicle activator.

Claims

1. A scalp and hair cosmetic material containing an amine oxide represented by the following general formula (I)

[Structure 1]



(where R¹ represents a C₁₀₋₃₆ alkyl group or alkenyl group), and a hair follicle activator.

2. The scalp and hair cosmetic material described in Claim 1, in which the amine oxide is one or more selected from among N,N-dimethyl-2-decyl tetradecyl amine oxide, oleyl dimethyl amine oxide, and isostearyl dimethyl amine oxide.

3. The scalp and hair cosmetic material described in Claim 2, in which the amine oxide is N,N-dimethyl-2-decyl tetradecyl amine oxide.

4. The scalp and hair cosmetic material described in Claim 2, in which the amine oxide is one or more of oleyl dimethyl amine oxide and isostearyl dimethyl amine oxide.

5. The scalp and hair cosmetic material described in any of Claims 1-4, in which the hair follicle activator is one or more selected from among nicotinamide, vitamin B₆ and its derivatives, biotin, pantothenic acid and its derivatives, cephalanthin, mononitroguaiacol, mononitroguaiacol sodium salt, 6-benzylaminopurine, diisopropylamine, dichloroacetic acid, hinokitiol, and pentadecanoic acid monoglyceride.

6. The scalp and hair cosmetic material described in any of Claims 1-5, in which the amine oxide is contained at 0.0001-20 wt%.

7. The scalp and hair cosmetic material described in any of Claims 1-6, in which the hair follicle activator is contained at 0.001-5 wt%.

Detailed explanation of the invention

[0001]

Technical field of the invention

The present invention relates to a scalp and hair cosmetic material. More specifically, it relates to a scalp and hair cosmetic material that has excellent hair growing effect, hair loss preventing effect, and scalp dandruff and itch preventing effect, and that is also excellent in safety.

[0002]

Prior art

In the modern aging and stressed society, baldness or hair loss, thinning of hair, dandruff and itching of the scalp, and a variety of other problems of the scalp and hair have increased. The demand for scalp and hair cosmetic materials corresponding to these problems has increased drastically. Therefore, research and development of a variety of products corresponding to these problems have been conducted.

[0003]

For scalp and hair, structurally, the outer skin of the scalp (skin) is depressed to the dermis side to form a lumen, and becomes a follicle. A sebaceous gland is connected to the top of the follicle. Hair is present inside this follicle. It is divided into the hair shaft as a portion appearing on the skin (scalp) surface, and the hair root penetrating into the skin inside. The hair follows a cycle called "hair period" that consists of the growth period, the regression period, and the cessation period. Growth and detachment are repeated according to this cycle. It is said that the follicle relates to the growth period of this hair period.

[0004]

As causes of baldness or hair loss, hair thinning, dandruff or itching of the scalp, and so on, the activation of male hormones in the sebaceous glands of the hair root, excessive sebaceous secretion, formation of lipid peroxides, a decrease in the amount of blood flow to the follicles, stress, and so on can be mentioned. In the growth of healthy and beautiful hair, if a sufficient nutrient supply cannot be carried out to the follicle, this will become a cause of thin hair. A decrease in the amount of blood flow to the follicle will lead to malnutrition and a reduction in the waste excreting function.

[0005]

From this viewpoint, an improvement of the turnover of the horny layers of the scalp, excessive sebaceous secretion and so on will at least improve the reduction in the blood flow function to the scalp. At the same time, this is presumably indispensable to the solution of scalp and hair problems.

[0006]

In general, the conventional hair cosmetic materials are mostly materials obtained by blending of substances that eliminate the major factors believed to be the causes of baldness or hair loss, or that have an alleviating effect. For example, materials obtained by blending of vitamin B, vitamin E or other vitamins, serine, methionine or other amino acids, Japanese green gentian extract, acetylcholine derivatives or other blood vessel dilating agents, saikon [transliteration] extract or other anti-inflammatory agents, estradiol or other female hormones, cephalanthin or other skin function promoting-agents, or the like have been used in the prevention of treatment of baldness, hair loss, or hair thinning.

[0007]

Problems to be solved by the invention

However, in order to achieve a sufficient effectiveness, it is necessary to blend an amount above a certain level in the hair cosmetic material obtained by blending these components. On the other hand, if these components are blended in large amounts, there may be cases in which an uncomfortable irritating feeling or reddening is observed. Their amounts of blending have restrictions. Therefore, in the prevention of hair thinning, it is difficult to achieve effectiveness to an extent of sufficient satisfaction while usage characteristics and safety are being satisfied.

[0008]

In view of that described previously, the present invention has an objective to provide a scalp and hair cosmetic material that has excellent hair loss preventing effect, hair growing effect, and scalp dandruff or itch preventing effect, and that is excellent in safety.

[0009]

Means to solve the problems

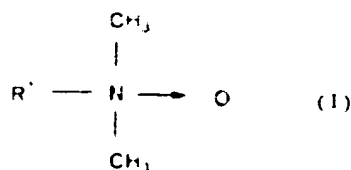
As a result of zealous investigations in order to solve the problems described previously, the present inventors have discovered that a scalp and hair cosmetic material having excellent hair loss preventing effect, hair growing effect, and scalp dandruff or itch preventing effect and excellent in safety can be provided by blending a specific amine oxide and a follicle activator in combination.

[0010]

In other words, the present invention is a scalp and hair cosmetic material containing an amine oxide represented by the following general formula (I)

[0011]

[Structure 2]



[0012]

(where R¹ represents a C₁₀₋₃₆ alkyl group or alkenyl group), and a hair follicle activator.

[0013]

Embodiment of the invention

The present invention will be described in detail in the following.

[0014]

The amine oxide that can be used in the present invention is represented by the general formula (I) given previously. In the formula, R¹ represents a C₁₀₋₃₆ alkyl group or alkenyl group. However, the number of carbon atoms mentioned previously is preferably 12-24. As such amine

oxides, specifically, one or more selected from among N N-dimethyl-2-decyl tetradecyl amine oxide, oleyl dimethyl amine oxide, and isostearyl dimethyl amine oxide can be used preferably. Among these, oleyl dimethyl amine oxide can be used especially preferably. Furthermore, one or more of oleyl dimethyl amine oxide and isostearyl dimethyl amine oxide can be used preferably [sic].

[0015]

The amount of blending of the amine oxide mentioned previously is preferably 0.0001-20 wt%, especially 0.05-5 wt%, in the total amount of the scalp and hair cosmetic material. If this is less than 0.0001 wt%, it will be difficult to obtain sufficient effects for hair loss prevention, hair growth, and scalp dandruff or itch prevention. On the other hand, if this exceeds 20 wt%, it will be undesirable since a trend of rendering an uncomfortable sticky feeling or an irritating feeling to the scalp during use will be observed.

[0016]

As the follicle activators that can be used in the present invention, there are no special restrictions as long as they are substances that activate follicles. In particular, nicotinamide, vitamin B₆ and its derivatives (such as pyridoxine dioctanoate and so on), biotin, pantothenic acid and its derivatives (such as pantothenyl ethyl ether or the like), cephalanthin, mononitroguaiacol, mononitroguaiacol sodium salt, 6-benzylaminopurine, diisopropylamine dichloroacetic acid, hinokitiol, and pentadecanoic acid monoglyceride and so on can be used preferably. One or more of the follicle activators can be used.

[0017]

The amount of blending of the follicle activator is preferably 0.001-5 wt%, especially 0.01-2 wt%, in the total amount of the scalp and hair cosmetic material. If this is less than 0.001 wt%, it will be difficult to obtain sufficient effects for hair loss prevention, hair growth, and scalp dandruff or itch prevention. On the other hand, if this exceeds 5 wt%, it will be undesirable since an uncomfortable irritating feeling of the scalp during use of the preparation will be observed.

[0018]

In the scalp and hair cosmetic material of the present invention, in addition to the necessary components mentioned previously, it is also possible to blend, if necessary, an oily component, a surfactant, an antioxidant, an ultraviolet absorber, a moisturizer, a perfume, a dye, a pigment, a coloring matter, preservatives, vitamins, hormones, a deodorizer, a pH adjusting

agent, a binder, and other components used in common scalp and hair cosmetic materials, in a range without damaging the effectiveness of the present invention.

[0019]

The scalp and hair cosmetic material of the present invention may be any of a liquid, an emulsion, a cream, a gel, an aerosol, or other agent preparations appropriate for external use. It is used in the form of a tonic, a scalp treatment, etc.

[0020]

Application examples

Next, the present invention will be further explained in detail with application examples. However, the present invention is not to be restricted by these application examples. The amounts of blending represent wt% unless specially indicated otherwise.

[0021]

First of all, various test methods and evaluation methods for the hair-growing effectiveness test, the hair loss preventing effectiveness test, and the dandruff and itch preventing effectiveness test used in the present application examples will be explained.

[0022]

Hair-growing effectiveness test

In order to investigate the hair-growing effect of the present invention, a trichogram test was carried out. The test subjects were male, and there were 10 persons in each group of comparative examples and application examples. The test period (the sample coating period) was four months. During the period, the sample was coated at 2-4 mL on the scalp twice a day. Immediately before the initiation of the sample coating and after the completion of the sample-coating period, 50 pieces of final hair were removed at random from the top of the head of each of the test subjects. The hair roots of the hair removed were observed under a microscope. From the state of the hair roots, the hair-root cessation period ratio (%) was calculated. The extent of an increase or a decrease in the hair-root cessation period ratio (%) was evaluated according to the following criteria:

Judging criteria

Remarkable effectiveness: The hair-root cessation period ratio was decreased by at least 30%.

Effectiveness: The hair-root cessation period ratio was decreased by at least 20%.

Weak effectiveness: The hair-root cessation period ratio was decreased by at least 10%.

No effectiveness: The hair-root cessation period ratio was decreased by less than 10% or increased.

Evaluation of hair-growing effectiveness

The cases in which the ratio of the test subjects with evaluations of "effectiveness" or better is at least 50% according to the evaluation criteria mentioned previously are effective. The cases outside this are ineffective.

[0023]

Hair-loss preventing effectiveness test

This was measured with a change in the number of pieces of hair lost due to hair washing before and after the sample use. The test subjects were male, and there were 10 persons in each group of comparative examples and application examples. The test period was six months. The first two-month period of the early period was the period without the sample coating. The four-month period in the later period was the sample-coating period. The sample was coated on the scalp twice a day, at 2-4 mL per application. During the test period, hair was washed once a day, and the lost hair was recovered. The number of pieces of final hair was counted on a weekly basis. The evaluation of the number of hairs lost was carried out by the average value of the final week in the early period and the average value of the final week in the later period.

Evaluation criteria

++: Remarkable effectiveness with a decrease in the number of pieces of lost hair by at least 70 was observed.

+: Considerable effectiveness with a decrease in the number of pieces of lost hair by at least 40 was observed.

±: Slight effectiveness with a decrease in the number of pieces of lost hair by at least 10 was observed.

-: No effectiveness with a decrease in the number of pieces of lost hair by less than 10 or an increase in the number of pieces of lost hair was observed.

Evaluation of the hair-loss preventing effectiveness

The cases in which the ratio of the test subjects with evaluations of "+" or better is at least 50% according to the evaluation criteria mentioned previously are effective. The cases outside this are ineffective.

[0024]

Dandruff and itch preventing effectiveness test

With male subjects especially complaining about dandruff and itching, the test (the sample coating) was carried out on 10 persons in each of the groups in the comparative examples and application examples. After the test, dandruff and itching were investigated. They were evaluated by the amount of protein in the dandruff and the extent of the itching. The sample coating period was three months. During this period, hair was washed once a day with a shampoo having no drug agents added. The sample was coated on the scalp at 2-4 mL at twice a day.

[0025]

After the completion of the test, scalp dandruff was collected with a suction apparatus from the test subjects before hair washing. The amount of protein in the dandruff was measured.

[0026]

Furthermore, the extent of itching of the scalp was expressed by the following scores from each of the test subjects.

Scores of itch

3: Strong itching

2: Itching

1: Slight itching

0: No itching

[0027]

Comparative Examples 1-12 and Application Examples 1-12

In the composition shown in Tables 1-4, N,N-dimethyl-2-decyl tetradecyl amine oxide was dissolved in 95% ethanol. Furthermore, the follicle activator, dipropylene glycol, cured castor oil ethylene oxide (40 mol) adduct, succinic acid, and a perfume were dissolved (the ethanol portion). On the other hand, separate from this, a coloring matter was added to purified water and dissolved (the water portion). This water portion was added to the ethanol portion and stirred to obtain a transparent liquid lotion.

[0028]

Table 1

| ① 配合成分 | ② 比較例 | | | | | |
|----------------------------|-------|------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| N,N-ジメチル-2-デシルテトラデシルアミンオキド | 1.0 | - | - | - | - | - |
| ニコチン酸アミド | - | 1.0 | - | - | - | - |
| ビタミンB ₆ | - | - | 0.5 | - | - | - |
| ビオチン | - | - | - | 0.5 | - | - |
| パントテン酸エチルエーテル | - | - | - | - | 1.0 | - |
| セファランチン | - | - | - | - | - | 0.01 |
| モノニトログアイアコール | - | - | - | - | - | - |
| モノニトログアイアコールナトリウム | - | - | - | - | - | - |
| 6-ベンジルアミノプリン | - | - | - | - | - | - |
| ジイソプロピルアミンジクロロ酢酸 | - | - | - | - | - | - |
| ヒノキゲソール | - | - | - | - | - | - |
| ペンタデカン酸モノグリセリド | - | - | - | - | - | - |
| ジブチレングリコール | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 酸化ビニルピリジンオキド (40% 付加物) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| ニハゲ酸 | 適量 | 適量 | 適量 | 適量 | 適量 | 適量 |
| 香料 | 適量 | 適量 | 適量 | 適量 | 適量 | 適量 |
| 色素 | 適量 | 適量 | 適量 | 適量 | 適量 | 適量 |
| 9.5%ニタノール | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 |
| 総量 | 100 | 100 | 100 | 100 | 100 | 100 |

- Key: 1 Blended components
 2 Comparative Example
 3 N,N-dimethyl-2-decyl tetradecyl amine oxide
 Nicotinamide
 Vitamin B₆
 Biotin
 Pantothenyl ethyl ether
 Cephalanthin
 Mononitroguaiacol
 Mononitroguaiacol sodium salt
 6-Benzylaminopurine
 Diisopropylamine dichloroacetic acid

- Key: 1 Blended components
2 Comparative Example
3 N,N-dimethyl-2-decyl tetradecyl amine oxide
Nicotinamide
Vitamin B₆
Biotin
Pantothenyl ethyl ether
Cephalanthin
Mononitroguaiacol
Mononitroguaiacol sodium salt
6-Benzylaminopurine
Diisopropylamine dichloroacetic acid
Hinokitiol
Pentadecanoic acid monoglyceride
Dipropylene glycol
Cured castor oil ethylene oxide (40 mol) adduct
Succinic acid
Perfume
Coloring matter
95% Ethanol
Purified water
4 Appropriate amount
5 Balance

[0030]

Table 3

| ① 配合成分 | ② 実施例 | | | | | |
|-------------------------------|----------|------|------|------|-------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| ③ N,N-ジメチル-2-デシルテトラデシルアミンオキシド | 0.001 | 10.0 | 0.01 | 15.0 | 0.05 | 2.0 |
| ニコチン酸アミド | 0.3 | | - | - | - | - |
| ビタミンB ₆ | - | 0.1 | - | - | - | - |
| ビオチン | - | - | 0.2 | - | - | - |
| パントチン酸エチルエステル | - | - | - | 1.0 | - | - |
| セファランチン | | - | - | - | 0.003 | - |
| モノニトログアイアコール | - | - | - | - | - | 0.5 |
| モノニトログアイアコールナトリウム | - | - | - | - | - | - |
| 6-ベンジルアミノプリン | - | - | - | - | - | - |
| ジイソプロピルアミンジクロロ酢酸 | - | | - | - | - | - |
| ヒドロキノン | - | - | - | - | - | - |
| ベンジメチルアミンジグリセリド | - | - | - | - | - | - |
| ジイソプロピルグリセロール | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 酸化マangan(IV)オキシド (40%水)付加物 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 香料 | 適量 | 適量 | 適量 | 適量 | 適量 | 適量 |
| 色素 | 適量 | 適量 | 適量 | 適量 | 適量 | 適量 |
| 水 | 55.0 | 55.0 | 55.0 | 55.0 | 55.0 | 55.0 |
| 総量 | 100 | 100 | 100 | 100 | 100 | 100 |

- Key: 1 Blended components
 2 Application Example
 3 N,N-dimethyl-2-decyl tetradecyl amine oxide
 Nicotinamide
 Vitamin B₆
 Biotin
 Pantothenyl ethyl ether
 Cephalanthin
 Mononitroguaiacol
 Mononitroguaiacol sodium salt
 6-Benzylaminopurine
 Diisopropylamine dichloroacetic acid

| | | |
|------|---|---|
| Key: | 1 | Blended components |
| | 2 | Application Example |
| | 3 | N,N-dimethyl-2-decyl tetradecyl amine oxide |
| | | Nicotinamide |
| | | Vitamin B ₆ |
| | | Biotin |
| | | Pantothenyl ethyl ether |
| | | Cephalanthin |
| | | Mononitroguaiacol |
| | | Mononitroguaiacol sodium salt |
| | | 6-Benzylaminopurine |
| | | Diisopropylamine dichloroacetic acid |
| | | Hinokitiol |
| | | Pentadecanoic acid monoglyceride |
| | | Dipropylene glycol |
| | | Cured castor oil ethylene oxide (40 mol) adduct |
| | | Succinic acid |
| | | Perfume |
| | | 95% Ethanol |
| | | Purified water |
| | 4 | Appropriate amount |
| | 5 | Balance |

[0032]

By using the samples of Comparative Examples 1-12 and Application Examples 1-12 mentioned previously, the hair-growing effectiveness test, the hair-loss preventing effectiveness test, and the dandruff and itch preventing effectiveness test described previously were carried out, and they were evaluated. The results are shown in Tables 5, 6, and 7.

[0033]

Table 5

| ① 群 | ② 毛根休止期間の判定 (被験者数 (%)) | | | | ⑦ 養毛効果の 評価 |
|---------|------------------------|------|------|------|---------------|
| | 顕著な効果 | 効果あり | 弱い効果 | 効果なし | |
| ⑧ 比較例 1 | ③ 10 | ④ 30 | ⑤ 20 | ⑥ 40 | 無効 |
| 比較例 2 | 0 | 0 | 10 | 90 | 無効 |
| 比較例 3 | 0 | 20 | 20 | 60 | 無効 |
| 比較例 4 | 0 | 30 | 10 | 60 | 無効 |
| 比較例 5 | 10 | 10 | 20 | 60 | 無効 |
| 比較例 6 | 0 | 0 | 20 | 80 | 無効 |
| 比較例 7 | 0 | 0 | 30 | 70 | 無効 |
| 比較例 8 | 0 | 0 | 10 | 90 | 無効 |
| 比較例 9 | 0 | 20 | 0 | 80 | 無効 |
| 比較例 10 | 0 | 10 | 10 | 80 | 無効 |
| 比較例 11 | 0 | 0 | 30 | 70 | 無効 |
| 比較例 12 | 0 | 0 | 40 | 60 | 無効 |
| 実施例 1 | 2 | 40 | 20 | 20 | 有効 |
| 実施例 2 | 3 | 40 | 20 | 10 | 有効 |
| 実施例 3 | 2 | 60 | 0 | 30 | 有効 |
| 実施例 4 | 5 | 30 | 20 | 0 | 有効 |
| 実施例 5 | 1 | 60 | 10 | 20 | 有効 |
| 実施例 6 | 3 | 60 | 10 | 0 | 有効 |
| 実施例 7 | 2 | 60 | 20 | 20 | 有効 |
| 実施例 8 | 2 | 60 | 20 | 10 | 有効 |
| 実施例 9 | 1 | 40 | 40 | 10 | 有効 |
| 実施例 10 | 2 | 40 | 20 | 10 | 有効 |
| 実施例 11 | 1 | 40 | 40 | 10 | 有効 |
| 実施例 12 | 2 | 60 | 20 | 10 | 有効 |

- Key:
- 1 Group
 - 2 Evaluation of the hair root cessation period ratio (No. of test subjects (%))
 - 3 Remarkable effectiveness
 - 4 Effectiveness
 - 5 Weak effectiveness
 - 6 No effectiveness
 - 7 Evaluation of the hair-growing effectiveness
 - 8 Comparative Example
 - 9 Ineffective
 - 10 Application Example
 - 11 Effective

[0034]

Table 6

| 群 | 抜け毛本数の測定 (被験者数 (%)) | | | | 脱毛防止効果の評価 |
|---------|---------------------|----|----|----|-----------|
| | ++ | + | ± | - | |
| ① 比較例 1 | 10 | 30 | 10 | 50 | 無効 |
| 比較例 2 | 0 | 0 | 10 | 90 | 無効 |
| 比較例 3 | 0 | 10 | 20 | 70 | 無効 |
| 比較例 4 | 0 | 30 | 0 | 70 | 無効 |
| 比較例 5 | 10 | 10 | 10 | 70 | 無効 |
| 比較例 6 | 0 | 0 | 20 | 80 | 無効 |
| 比較例 7 | 0 | 0 | 20 | 70 | 無効 |
| 比較例 8 | 0 | 0 | 10 | 90 | 無効 |
| 比較例 9 | 0 | 20 | 10 | 70 | 無効 |
| 比較例 10 | 0 | 10 | 10 | 80 | 無効 |
| 比較例 11 | 0 | 0 | 20 | 70 | 無効 |
| 比較例 12 | 0 | 0 | 20 | 70 | 無効 |
| ⑤ 実施例 1 | 20 | 50 | 10 | 20 | 有効 |
| 実施例 2 | 50 | 50 | 10 | 10 | 有効 |
| 実施例 3 | 20 | 40 | 0 | 40 | 有効 |
| 実施例 4 | 40 | 40 | 20 | 0 | 有効 |
| 実施例 5 | 10 | 50 | 1 | 20 | 有効 |
| 実施例 6 | 20 | 40 | 1 | 10 | 有効 |
| 実施例 7 | 20 | 30 | 20 | 20 | 有効 |
| 実施例 8 | 10 | 40 | 20 | 10 | 有効 |
| 実施例 9 | 10 | 40 | 40 | 10 | 有効 |
| 実施例 10 | 10 | 40 | 20 | 10 | 有効 |
| 実施例 11 | 10 | 40 | 20 | 20 | 有効 |
| 実施例 12 | 50 | 40 | 20 | 10 | 有効 |

- Key: 1 Group
 2 Evaluation of the number of pieces of lost hair (No. of test subjects (%))
 3 Evaluation of the hair-loss preventing effectiveness
 4 Comparative Example
 5 Application Example
 6 Ineffective
 7 Effective

[0035]

Table 7

| | ② | ③ | |
|---|--------|-------------|-------------|
| ① | 群 | 平均かゆい量 (mg) | かゆみ (平均スコア) |
| ④ | 比較例 1 | 17.33 | 1.4 |
| | 比較例 2 | 19.51 | 1.7 |
| | 比較例 3 | 18.25 | 1.6 |
| | 比較例 4 | 18.06 | 1.6 |
| | 比較例 5 | 18.47 | 1.4 |
| | 比較例 6 | 22.06 | 1.7 |
| | 比較例 7 | 20.11 | 1.7 |
| | 比較例 8 | 19.54 | 1.8 |
| | 比較例 9 | 18.83 | 1.9 |
| | 比較例 10 | 16.50 | 2.0 |
| | 比較例 11 | 17.27 | 1.6 |
| | 比較例 12 | 19.25 | 1.7 |
| ⑤ | 実施例 1 | 6.27 | 0.6 |
| | 実施例 2 | 6.51 | 0.6 |
| | 実施例 3 | 6.73 | 0.6 |
| | 実施例 4 | 6.00 | 0.6 |
| | 実施例 5 | 6.59 | 0.6 |
| | 実施例 6 | 6.11 | 0.9 |
| | 実施例 7 | 7.55 | 0.7 |
| | 実施例 8 | 7.66 | 0.7 |
| | 実施例 9 | 7.89 | 0.9 |
| | 実施例 10 | 6.15 | 0.5 |
| | 実施例 11 | 7.37 | 0.8 |
| | 実施例 12 | 6.42 | 0.6 |

Key: 1 Group
 2 Average dandruff amount
 3 Itchiness (average score)
 4 Comparative Example
 5 Application Example

[0036]

As shown in Tables 5, 6, and 7, the present invention is excellent in hair-growing effectiveness and hair-loss preventing effectiveness, as well as excellent in dandruff and itch preventing effectiveness.

[0037]

Application Example 13

Lotion

| (Blended components) | (wt%) |
|---|--------------------|
| 95% Ethanol | 55.0 |
| N,N-Dimethyl-2-decyl tetradecyl amine oxide | 5.0 |
| Nicotinamide | 0.5 |
| Hinokitiol | 0.2 |
| 1,3-Butylene glycol | 1.5 |
| POE cured castor oil (60 mol added) | 1.0 |
| Succinic acid | Appropriate amount |
| Perfume | Appropriate amount |
| Coloring matter | Appropriate amount |
| Purified water | Balance |

Preparation method

In 95% ethanol, N,N-dimethyl-2-decyl tetradecyl amine oxide was dissolved. Furthermore, nicotinamide, hinokitiol, 1,3-butylene glycol, POE cured castor oil (60 mol added), and a perfume were dissolved (the ethanol portion). On the other hand, separate from this, succinic acid and a coloring matter were dissolved in purified water (the water portion). This water portion was added to the ethanol portion and stirred to obtain a transparent liquid lotion.

[0038]

Application Example 14

Lotion

| (Blended components) | (wt%) |
|---|-------|
| 95% Ethanol | 75.0 |
| N,N-dimethyl-2-decyl tetradecyl amine oxide | 0.03 |
| Pantothenyl ethyl ether | 5.0 |
| Cephalanthin | 0.05 |
| Dipropylene glycol | 1.0 |

| | |
|--|--------------------|
| POE (24 mol) · POP (13 mol) decyl tetradecyl ether | 0.5 |
| Lactic acid | Appropriate amount |
| Sodium lactate | Appropriate amount |
| Perfume | Appropriate amount |
| Coloring matter | Appropriate amount |
| Purified water | Balance |

Preparation method

In 95% ethanol, N,N-dimethyl-2-decyl tetradecyl amine oxide was dissolved. Furthermore, pantothenyl ethyl ether, cephalanthin, dipropylene glycol, POE (24 mol) · POP (13 mol) decyl tetradecyl ether, and a perfume were dissolved (the ethanol portion). On the other hand, separate from this, lactic acid, sodium lactate, and a coloring matter were dissolved (the water portion). This water portion was added to the ethanol portion and stirred to obtain a transparent liquid lotion.

[0039]

Application Example 15

Lotion

| | |
|---|--------------------|
| (Blended components) | (wt%) |
| 95% Ethanol | 60.0 |
| N,N-dimethyl-2-decyl tetradecyl amine oxide | 20.0 |
| Mononitroguaiacol sodium salt | 1.0 |
| Vitamin B ₆ | 0.5 |
| 6-Aminobenzylpurine | 0.5 |
| Diisopropylamine dichloroacetic acid | 0.05 |
| Polyethylene glycol (400) | 0.5 |
| POE cured castor oil (20 mol) | 1.0 |
| Phosphoric acid | Appropriate amount |
| Perfume | Appropriate amount |
| Coloring matter | Appropriate amount |
| Purified water | Balance |

Preparation method

In 95% ethanol, N,N-dimethyl-2-decyl tetradecyl amine oxide was dissolved. Furthermore, mononitroguaiacol sodium salt, vitamin B₆, 6-aminobenzylpurine, diisopropylamine dichloroacetic acid, polyethylene glycol (400), POE cured castor oil (20 mol),

and a perfume were dissolved (the ethanol portion). On the other hand, phosphoric acid and a coloring matter were dissolved in purified water (the water portion). This water portion was added to the ethanol portion and stirred to obtain a transparent liquid lotion.

[0040]

Application Examples 13-15 were excellent in the hair-growing effectiveness and the hair-loss preventing effectiveness, as well as excellent in the dandruff and itch preventing effectiveness.

[0041]

Comparative Examples 13-23 and Application Examples 16-27

In the compositions shown in Tables 8-11, one or more of any of oleyl dimethyl amine oxide and isostearyl dimethyl amine oxide was dissolved in 95% ethanol. Furthermore, a follicle activator, dipropylene glycol, a cured castor oil ethylene oxide (50 mol) adduct, malic acid, and a perfume were dissolved (the ethanol portion). On the other hand, separate from this, a coloring matter was added into purified water and dissolved (the water portion). This water portion was added to the ethanol portion and stirred to obtain a transparent liquid lotion.

[0042]

Table 8

| ① 配合成分 | ② 比較例 | | | | | |
|-------------------------------|-------|------|------|------|------|------|
| | 13 | 14 | 15 | 16 | 17 | 18 |
| ③ オレイルジメチルアミンオキシド | 1.0 | — | — | — | — | — |
| イソステアerylジメチルアミンオキシド | — | 1.0 | — | — | — | — |
| ニコチン酸アミド | — | — | 0.5 | — | — | — |
| ビオチン | — | — | — | 0.5 | — | — |
| パントチン酸エチルエーテル | — | — | — | — | 0.5 | — |
| セファランチン | — | — | — | — | — | 0.01 |
| モノニトログアイコール | — | — | — | — | — | — |
| モノニトログアイコールナトリウム | — | — | — | — | — | — |
| 6-ベンズアミンプリン | — | — | — | — | — | — |
| ジイソプロピルアミンジクロロ酢酸 | — | — | — | — | — | — |
| ペンタデカン酸モノグリセリド | — | — | — | — | — | — |
| プロピレングリコール | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| 酸化マンガンエーテルナトリウム (5.0モル)付加物 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| リンゴ酸 | 適量 | 適量 | 適量 | 適量 | 適量 | 適量 |
| 香料 | 適量 | 適量 | 適量 | 適量 | 適量 | 適量 |
| 色素 | 適量 | 適量 | 適量 | 適量 | 適量 | 適量 |
| 9.5%エタノール | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 |
| 調整剤 | 残部 | 残部 | 残部 | 残部 | 残部 | 残部 |

- Key: 1 Blended components
 2 Comparative Example
 3 Oleyl dimethyl amine oxide
 Isostearyl dimethyl amine oxide
 Nicotinamide
 Biotin
 Pantothenyl ethyl ether
 Cephalanthin
 Mononitroguaiacol
 Mononitroguaiacol sodium salt
 6-Benzylaminopurine
 Diisopropylamine dichloroacetic acid
 Pentadecanoic acid monoglyceride
 Propylene glycol

Cured castor oil ethylene oxide (50 mol) adduct

Malic acid

Perfume

Coloring matter

95% Ethanol

Purified water

4 Appropriate amount

5 Balance

[0043]

Table 9

| 配合成分 ① | 比較例 ② | | | | |
|----------------------------|----------|-----|-----|-----|-----|
| | 19 | 20 | 21 | 22 | 23 |
| ③ オレイルジメチルアミンオキシド | - | - | - | - | - |
| イソステアールジメチルアミンオキシド | - | - | - | - | - |
| ジコハジコハ酸アミド | - | - | - | - | - |
| ジコハジコハ | - | - | - | - | - |
| パントテニルエチルヘキシル | - | - | - | - | - |
| カプサイシン | - | - | - | - | - |
| モノヒドロキシステアール | 0.5 | - | - | - | - |
| モノヒドロキシステアールモノヒドロキシ | - | 0.5 | - | - | - |
| モノヒドロキシステアールモノヒドロキシ | - | - | 0.5 | - | - |
| ジノノプロピルアミンジコハジコハ酸アミド | - | - | - | 0.5 | - |
| パントテニルヘキシルヘキシル | - | - | - | - | 0.5 |
| プロピレングリコール | 20 | 20 | 20 | 20 | 20 |
| 精化ヒマン酸エチルヘキシル (50分子)付加物 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 香料 | 適量 | 適量 | 適量 | 適量 | 適量 |
| 色素 | 適量 | 適量 | 適量 | 適量 | 適量 |
| 95%エタノール | 600 | 600 | 600 | 600 | 600 |
| 精製水 | 残量 | 残量 | 残量 | 残量 | 残量 |

Key: 1 Blended components
 2 Comparative Example
 3 Oleyl dimethyl amine oxide
 Isostearyl dimethyl amine oxide

- Nicotinamide
- Biotin
- Pantothenyl ethyl ether
- Cephalanthin
- Mononitroguaiacol
- Mononitroguaiacol sodium salt
- 6-Benzylaminopurine
- Diisopropylamine dichloroacetic acid
- Pentadecanoic acid monoglyceride
- Propylene glycol
- Cured castor oil ethylene oxide (50 mol) adduct
- Malic acid
- Perfume
- Coloring matter
- 95% Ethanol
- Purified water
- 4 Appropriate amount
- 5 Balance

Cured castor oil ethylene oxide (50 mol) adduct

Malic acid

Perfume

Coloring matter

95% Ethanol

Purified water

4 Appropriate amount

5 Balance

[0045]

Table 11

| ① 配合成分 | ② 実施例 | | | | | |
|--------------------|-------|-----|-----|-----|------|-----|
| | 22 | 23 | 24 | 25 | 26 | 27 |
| ③ オレイルジメチルアミンオキシド | 10 | - | 3.0 | - | 1.0 | - |
| イソステアリンジメチルアミンオキシド | - | 10 | - | 1.0 | 1.0 | 20 |
| マリン酸 | - | - | - | 0.2 | - | - |
| 香料 | - | - | - | - | - | - |
| パント酸カルシウム | - | - | - | 0.2 | - | 0.5 |
| セリチン | - | - | - | - | 0.01 | - |
| モノステアリン酸 | - | - | - | - | - | - |
| モノステアリン酸ナトリウム | - | - | - | - | 0.2 | - |
| ステアリン酸モノステアリル | 3.0 | - | - | - | - | 0.5 |
| ステアリン酸モノステアリル | - | 6.0 | - | - | - | - |
| ステアリン酸モノステアリル | - | - | 1.0 | - | - | - |
| ステアリン酸モノステアリル | 20 | 20 | 20 | 20 | 20 | 20 |
| ステアリン酸モノステアリル | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| ステアリン酸モノステアリル | - | - | - | - | - | - |
| ステアリン酸モノステアリル | 適量 | 適量 | 適量 | 適量 | 適量 | 適量 |
| 香料 | 適量 | 適量 | 適量 | 適量 | 適量 | 適量 |
| 色素 | 適量 | 適量 | 適量 | 適量 | 適量 | 適量 |
| 95%エタノール | 600 | 600 | 600 | 600 | 600 | 600 |
| 精製水 | 残量 | 残量 | 残量 | 残量 | 残量 | 残量 |

Key: 1 Blended components
 2 Application Example
 3 Oleyl dimethyl amine oxide
 Isostearyl dimethyl amine oxide

| | |
|---|---|
| | Nicotinamide |
| | Biotin |
| | Pantothenyl ethyl ether |
| | Cephalanthin |
| | Mononitroguaiacol |
| | Mononitroguaiacol sodium salt |
| | 6-Benzylaminopurine |
| | Diisopropylamine dichloroacetic acid |
| | Pentadecanoic acid monoglyceride |
| | Propylene glycol |
| | Cured castor oil ethylene oxide (50 mol) adduct |
| | Malic acid |
| | Perfume |
| | Coloring matter |
| | 95% Ethanol |
| | Purified water |
| 4 | Appropriate amount |
| 5 | Balance |

[0046]

By using the samples of Comparative Examples 13-23 and Application Examples 16-27 mentioned previously, the hair-growing effectiveness test, the hair-loss preventing effectiveness test, and the dandruff and itch preventing effectiveness test described previously were carried out, and they were evaluated. The results are shown in Tables 12, 13, and 14.

[0047]

Table 12

| ① ① | ② 毛抜け防止効果の判定 (脱落者数 (%)) | | | | ⑦ ⑦ ⑩ |
|----------|-------------------------|------|------|------|-------------|
| | 顕著な効果 | 効果あり | 弱い効果 | 効果なし | |
| ⑧ 比較例 13 | 0 | 20 | 20 | 60 | ⑩ |
| 比較例 14 | 1 | 10 | 30 | 60 | |
| 比較例 15 | 0 | 10 | 10 | 80 | |
| 比較例 16 | 0 | 10 | 20 | 70 | |
| 比較例 17 | 0 | 0 | 20 | 80 | |
| 比較例 18 | 0 | 0 | 20 | 70 | |
| 比較例 19 | 0 | 10 | 20 | 70 | |
| 比較例 20 | 0 | 10 | 10 | 80 | |
| 比較例 21 | 0 | 0 | 20 | 80 | |
| 比較例 22 | 0 | 10 | 10 | 80 | |
| 比較例 23 | 0 | 20 | 10 | 70 | |
| ⑨ 実施例 16 | 2 | 10 | 20 | 10 | ⑪ |
| 実施例 17 | 2 | 20 | 40 | 20 | |
| 実施例 18 | 2 | 40 | 20 | 10 | |
| 実施例 19 | 3 | 40 | 20 | 10 | |
| 実施例 20 | 4 | 40 | 20 | 0 | |
| 実施例 21 | 4 | 20 | 20 | 10 | |
| 実施例 22 | 3 | 20 | 40 | 10 | |
| 実施例 23 | 4 | 40 | 10 | 10 | |
| 実施例 24 | 3 | 20 | 20 | 20 | |
| 実施例 25 | 4 | 10 | 10 | 0 | |
| 実施例 26 | 2 | 20 | 10 | 10 | |
| 実施例 27 | 3 | 10 | 10 | 10 | |

- Key:
- 1 Group
 - 2 Judgment of the number of pieces of lost hair (No. of test subjects (%))
 - 3 Remarkable effectiveness
 - 4 Effectiveness
 - 5 Weak effectiveness
 - 6 No effectiveness
 - 7 Evaluation of the hair-loss preventing effectiveness
 - 8 Comparative Example
 - 9 Application Example
 - 10 Ineffective

11 Effective

[0048]

Table 13

| ① 群 | ② 抜け毛本数の判定 (被験者数 (%)) | | | | ③ 脱毛防止効果の評価 |
|----------|--------------------------|----|----|----|----------------|
| | + | - | + | - | |
| ④ 比較例 13 | 10 | 20 | 20 | 10 | 無効 |
| 比較例 14 | 20 | 10 | 10 | 20 | 無効 |
| 比較例 15 | 0 | 10 | 10 | 80 | 無効 |
| 比較例 16 | 0 | 0 | 20 | 80 | 無効 |
| 比較例 17 | 0 | 10 | 20 | 70 | 無効 |
| 比較例 18 | 0 | 20 | 10 | 70 | 無効 |
| 比較例 19 | 0 | 0 | 20 | 70 | 無効 |
| 比較例 20 | 0 | 20 | 0 | 80 | 無効 |
| 比較例 21 | 0 | 10 | 20 | 70 | 無効 |
| 比較例 22 | 0 | 20 | 10 | 70 | 無効 |
| 比較例 23 | 0 | 20 | 0 | 80 | 無効 |
| ⑤ 実施例 16 | 40 | 20 | 20 | 10 | 有効 |
| 実施例 17 | 50 | 30 | 20 | 20 | 有効 |
| 実施例 18 | 50 | 40 | 20 | 10 | 有効 |
| 実施例 19 | 50 | 20 | 20 | 0 | 有効 |
| 実施例 20 | 50 | 50 | 0 | 20 | 有効 |
| 実施例 21 | 50 | 50 | 20 | 0 | 有効 |
| 実施例 22 | 40 | 30 | 20 | 10 | 有効 |
| 実施例 23 | 50 | 10 | 20 | 0 | 有効 |
| 実施例 24 | 50 | 40 | 20 | 10 | 有効 |
| 実施例 25 | 20 | 30 | 20 | 20 | 有効 |
| 実施例 26 | 40 | 20 | 20 | 10 | 有効 |
| 実施例 27 | 40 | 30 | 20 | 0 | 有効 |

- Key: 1 Group
 2 Judgment of the number of pieces of lost hair (No. of test subjects (%))
 3 Evaluation of the hair-loss preventing effectiveness
 4 Comparative Example
 5 Application Example
 6 Ineffective
 7 Effective

[0049]

Table 14

| <div style="display: flex; justify-content: space-around; width: 100%;"> ① ② ③ </div> | | |
|--|------------|-------------|
| 群 | 平均ふけ量 (mg) | かゆみ (平均スコア) |
| ④ | 比較例 13 | 1.2 |
| | 比較例 14 | 1.4 |
| | 比較例 15 | 1.7 |
| | 比較例 16 | 1.8 |
| | 比較例 17 | 2.1 |
| | 比較例 18 | 1.1 |
| | 比較例 19 | 1.7 |
| | 比較例 20 | 2.1 |
| | 比較例 21 | 2.0 |
| | 比較例 22 | 1.8 |
| | 比較例 23 | 1.9 |
| | 実施例 16 | 0.6 |
| ⑤ | 実施例 17 | 0.4 |
| | 実施例 18 | 0.4 |
| | 実施例 19 | 0.5 |
| | 実施例 20 | 0.3 |
| | 実施例 21 | 0.7 |
| | 実施例 22 | 0.4 |
| | 実施例 23 | 0.5 |
| | 実施例 24 | 0.7 |
| | 実施例 25 | 0.7 |
| | 実施例 26 | 0.7 |
| | 実施例 27 | 0.6 |

Key: 1 Group
 2 Average dandruff amount
 3 Itchiness (average score)
 4 Comparative Example
 5 Application Example

[0050]

As shown in Tables 12, 13, and 14, the present invention is excellent in hair-growing effectiveness and hair-loss preventing effectiveness, as well as excellent in dandruff and itch preventing effectiveness.

[0051]

Application Example 28

Lotion

| (Blended components) | (wt%) |
|---|--------------------|
| 95% Ethanol | 55.0 |
| Oleyl dimethyl amine oxide | 2.0 |
| Nicotinamide | 0.1 |
| Glycerol | 1.0 |
| Cured castor oil ethylene oxide (40 mol) adduct | 0.5 |
| Malic acid | Appropriate amount |
| Perfume | Appropriate amount |
| Coloring matter | Appropriate amount |
| Purified water | Balance |

Preparation method

In 95% ethanol, oleyl dimethyl amine oxide, nicotinamide, glycerol, cured castor oil ethylene oxide (40 mol) adduct, malic acid and a perfume were dissolved (the ethanol portion). On the other hand, separate from this, a coloring matter was dissolved in purified water (the water portion). This water portion was added to the ethanol portion and stirred to obtain a transparent liquid lotion.

[0052]

Application Example 29

Lotion)

| (Blended components) | (wt%) |
|---|--------------------|
| 95% Ethanol | 65.0 |
| Isostearyl dimethyl amine oxide | 3.0 |
| Pantothenyl ethyl ether | 5.0 |
| Cephalanthin | 0.01 |
| Biotin | 0.2 |
| Dipropylene glycol | 5.0 |
| Cured castor oil ethylene oxide (50 mol) adduct | 0.5 |
| Malic acid | Appropriate amount |
| Perfume | Appropriate amount |
| Coloring matter | Appropriate amount |
| Purified water | Balance |

Preparation method

In 95% ethanol, isostearyl dimethyl amine oxide, pantothenyl ethyl ether, cephalanthin, biotin, dipropylene glycol, cured castor oil ethylene oxide (50 mol) adduct, malic acid, and a perfume were dissolved (the ethanol portion). On the other hand, separate from this, a coloring matter was dissolved in purified water (the water portion). This water portion was added to the ethanol portion and stirred to obtain a transparent liquid lotion.

[0053]

Application Example 30

Lotion

| (Blended components) | (wt%) |
|---|--------------------|
| 95% Ethanol | 50.0 |
| Oleyl dimethyl amine oxide | 2.0 |
| Isostearyl dimethyl amine oxide | 2.0 |
| Mononitroguaiacol | 0.1 |
| 6-Benzylaminepurine | 0.001 |
| Diisopropylamine dichloroacetic acid | 0.5 |
| 1, 3-Butylene glycol | 2.0 |
| Cured castor oil ethylene oxide (60 mol) adduct | 0.7 |
| Succinic acid | Appropriate amount |
| Perfume | Appropriate amount |
| Coloring matter | Appropriate amount |
| Purified water | Balance |

Preparation method

In 95% ethanol, oleyl dimethyl amine oxide, isostearyl dimethyl amine oxide, mononitroguaiacol, 6-benzylaminepurine, diisopropylamine dichloroacetic acid, 1,3-butylene glycol, cured castor oil ethylene oxide (60 mol) adduct, succinic acid and a perfume were dissolved (the ethanol portion). On the other hand, separate from this, a coloring matter was dissolved in purified water (the water portion). This water portion was added to the ethanol portion and stirred to obtain a transparent liquid lotion.

[0054]

Application Example 31

Emulsion

| (Blended components) | (wt%) |
|---------------------------------------|---------|
| (1) Cetanol | 1.6 |
| (2) Stearic acid | 1.3 |
| (3) Palmitic acid | 0.5 |
| (4) Liquid lanolin | 1.0 |
| (5) Squalane | 2.0 |
| (6) Monostearic acid glyceryl | 1.7 |
| (7) POE sorbitan monostearate | 0.5 |
| (8) Isostearyl dimethyl amine oxide | 0.5 |
| (9) Oleyl dimethyl amine oxide | 0.5 |
| (10) Pentadecanoic acid monoglyceride | 1.0 |
| (11) Mononitroguaiacol sodium salt | 0.3 |
| (12) Polyethylene glycol | 5.0 |
| (13) Triethanolamine | 1.0 |
| (14) Purified water | Balance |

Preparation method

Components (1)-(11) were mixed to obtain a mixture. On the other hand, separate from this, components (12)-(14) were mixed to obtain a mixture. The respective mixtures were heated separately to 70°C. After dissolution, they were mixed and emulsified with an emulsifying machine. By heat-exchange cooling, an emulsion was obtained.

[0055]

Effect of the invention

The scalp and hair cosmetic material of the present invention has excellent hair-growing effect and hair-loss preventing effect, as well as being excellent in dandruff and itch preventing effect.

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